




**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
**REGION 10**  
1200 Sixth Avenue, Suite 155  
Seattle, WA 98101-3188

**ENFORCEMENT &  
COMPLIANCE  
ASSURANCE DIVISION**

**Inspection Date(s):** July 17, 2019  
**Regulatory**  
**Program(s):** SIP, PSD, TV Permit, NSPS, NESHAP  
**Company name:** Hilcorp Alaska, LLC  
**Facility Name:** Milne Point Production Facility (MPPF)  
**Facility Physical**  
**Location:** Milne Point Unit, Alaska  
Latitude 70.4574°/Longitude -149.441°  
**Mailing Address:** 3800 Centerpoint Drive, Suite 1400  
Anchorage, AK 99503  
**County/Parish:** North Slope Borough  
**Facility Contact:** Julieanna Potter (Orczewska)  
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**ICIS-Air Number:** AK0000000218500050  
**Permit Number:** AQ0200TVP02  
**NAICS:** 211111 - Crude Petroleum and Natural Gas Extraction.  
**SIC:** 1311 - Crude Petroleum and Natural Gas  
**Attendees:**  
**Facility Representatives:**  
Mike Helms, N. Slope Environmental Specialist, (907) 670-3382  
(Filling in for Stefan Gogosha/Deb Heebner)  
**EPA Inspectors:**  
John Pavitt, EPA, Region 10, AOO, (907) 271-3688  
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**State Inspector(s):**  
Breanna Howard, AK DEC, Fairbanks Office, (907) 451-3189  
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EPA Lead Inspector  
Signature/Date  
John Pavitt, R10, ECAD, ATES  
10/28/19  
DateEPA Inspector  
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Christopher Williams, OECA, AED  
10/28/19  
DateSupervisor  
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Katie McClintock, R10, ECAD, ATES Section Chief  
10/28/19  
Date

## I. Introduction

The United States Environmental Protection Agency (EPA) and Alaska Department of Environmental Conservation (ADEC) inspected Hilcorp Alaska, LLC (Hilcorp) oil production pads associated with the Milne Point Production Facility ("MPPF," or the "facility") for compliance with regulations under the Clean Air Act (CAA). On July 3, 2019, the EPA notified the facility by phone and email of the CAA inspection to be conducted on July 17, 2019. This email is attached to this report (Attachment 1). The inspection was focused on compliance with New Source Performance Standards (NSPS) Subpart OOOOa – Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015. The MPPF and associated pads have existing facilities which became subject to the rule when they were modified or reconstructed after September 18, 2015.

### A. Summary of the Facility

Hilcorp, MPPF is an oil and gas production facility in the Milne Point Unit (MPU) oil field on the North Slope of Alaska. The SIC code for this facility is 1311, Crude Petroleum and Natural Gas Production. The NAICS code of this facility is 21111, Crude Petroleum and Natural Gas Extraction. The MPPF includes a grouping of well pads and a Central Facility Processing (CFP) pad which processes crude oil from the well pads.

Production fluids from wells are processed at the CFP to remove hydrocarbon gas and water from crude oil. Hydrocarbon gas is dehydrated and compressed for reinjection into the reservoir or used as fuel. Water is processed to remove oil before injection into disposal or injector wells. Crude oil is sent from the CFP via pipeline to the Trans Alaska Pipeline which transports all oil from the Alaska North Slope to Valdez, Alaska. According to the Title V permit Statement of Basis, the facility is a major source for three criteria pollutants: nitrogen oxides (NOx), carbon monoxide (CO) and volatile organic compounds (VOC). The facility is minor for hazardous air pollutants (HAPs).

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The facility's most recent Title V air permit was issued by ADEC on March 19, 2013 and was scheduled to expire March 19, 2018.<sup>1</sup> The permit was revised four times by the State and the facility operates under an application shield. The 2013 permit covered emission units (EU) located on the CFP, plus B-Pad, C-Pad and E-Pad. On March 12, 2019 ADEC issued Minor Source Permit AQ0200MSS08 to the facility, approving Hilcorp's request to disaggregate B-Pad and C-Pad from the Title V permit. Previous minor source permitting had already disaggregated Pads A, D, and F through K. Taken together, 10 of 11 Pads have been disaggregated from the Title V-permitted facility, leaving just E-Pad (the well pad closest to the CFP) plus the CFP as emission sources covered under the Title V-permitted facility.<sup>2</sup> Emission units at E-Pad include fuel gas-fired heaters. Emission units at the CFP include turbines, heaters, emergency engines, flares, oil reserve tanks and a glycol dehydration unit. (See Attachments 2 and 3, EU inventories for current and former permits).

NSPS Subpart OOOOa does not appear as an applicable requirement in the facility's Title V air permit. Subpart OOOOa was promulgated after the permit was issued. Meanwhile, Hilcorp has reported to EPA Region 10 that it has Well Affected Facilities and Fugitive Emissions Components at Well Sites which are subject to the subpart at seven MPPF Well Pads: B, C, F, J, K, L and S<sup>3</sup>. (See NSPS Subpart OOOOa Annual Reports section, below.)

## B. Compliance History

A review of EPA's database, Enforcement and Compliance History Online (ECHO)<sup>4</sup> shows that in the five years prior to the inspection, the facility submitted Annual Compliance Certifications (ACC) as required by Title V Permit Condition No. 87 and the CAA. In the 2018 ACC, Hilcorp reported the facility was in intermittent compliance with permit requirements to provide advance notice for source testing (late notification of source tests of two process heaters on E-Pad and one heater at the CFP), and Permit Condition 95 (submittal of an incomplete Facility Operating Report). ECHO also shows that ADEC conducted on-site inspections of the facility twice in the time period (every two years).

In the last five years, the State issued four Warning Letters to the MPPF facility.

- **10/23/14. Warning letter. Violation of Permit Condition:**
  - 92 (failure to provide contemporary notice to State and EPA of an Off-Permit Change when replacing EU 1, a turbine).

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<sup>1</sup> The 2013 permit was issued to BP Exploration (Alaska), Inc. Hilcorp later purchased the facility. Subsequent State air permitting has been with Hilcorp as owner/operator.

<sup>2</sup> Additional Milne Point Unit well pads exist which send production fluids to the CFP, but historically have not been listed in the Title V permit.

<sup>3</sup> The number of Hilcorp MPPF well pads subject to Subpart OOOOa has expanded over time. Since the 2018 Annual Compliance Report was submitted to EPA R10, Hilcorp added E-Pad and M-Pad ("Moose Pad") to their list of affected facilities, as described in their Fugitive Emissions Monitoring Plan (Attachment x).

<sup>4</sup> See <https://echo.epa.gov/>, a publicly available database.

- **11/25/15. Warning letter** transmitted in conjunction with a State Full Compliance Evaluation (FCE) report. Violation of Permit Conditions:
  - 17 (late submittal of an EEMSP monitoring report required by NSPS Subpart GG for turbines);
  - 85.(i) (late submittal of an emission monitor RATA test result);
  - 92.2 (failure to provide contemporary notice to State and EPA of an Off-Permit Change for a physical change to a turbine);
  - 95 (late submittal of a FOR);
  - 96 (requirement to comply with all permit conditions).
- **4/21/16. Warning Letter.** Related to an Excess Emission Report submitted by the facility, for exceeding the permitted turbine load. (This same incident was reiterated with the 9/28/17 Warning Letter, below.)
- **9/28/17. Warning letter** transmitted in conjunction with a State FCE report. Violation of Permit Conditions:
  - 1.5 and 2.1b (failure to complete Method 9 opacity observations on schedule by a certified observer; certification was expired).
  - 31.1a, 31.1e, 31.1f, 31.2, 37.1 (failure to do preventative maintenance on two Reciprocating Internal Combustion Engines (RICE), as required by the permit and 40 CFR Part 63, Subpart ZZZZ. The two RICE engines were EU CP-3 and CP-6, located at Well Pad C).
  - 37.1 (late notification for the relocation of an alternative drill rig).
  - 56.1c (exceeding a load limit for EU 2, a turbine).
  - 94(c)(i) and 105 (later submittal of a Permit Deviation Report).
  - 105 (requirement to comply with all permit conditions).

#### Permit Deviation Reports:

- On 6/3/19, the facility submitted a Permit Deviation Report to ADEC, stating it was 10 days late in submitting a source test report for EU 1 (a turbine at the CFP), in violation of Permit Condition 88.

The 2018 ACC report does not address NSPS Subpart OOOOa. Permit AQ0267TVP01 does not identify Subpart OOOOa as an applicable requirement and does not include permit terms or conditions to demonstrate compliance with the Subpart.

#### C. NSPS Subpart OOOOa Annual Reports

CPAI submitted NSPS Subpart OOOOa Annual Reports to EPA R10 as required by 40 CFR §60.5420a(b), with a cc to ADEC. The reports provide information on multiple Hilcorp facilities in Alaska.

- The *Initial Report*, dated 10/30/17, covers the period 8/2/16 through 8/2/17. (See Initial Compliance Report requirements, §60.5410a.) The report included the following information:
  - Provided locations of 15 sites in Alaska with “Collections of Fugitive Emission Components at Well Sites” (one of the types of emission sources which are affected facilities under Subpart OOOOa). Six of the 15 sites were located within the MPU field: Pads B, C, J, K, L and S.
  - States the company did not conduct fugitive emissions monitoring at Alaska sites yet but planned to do so by the end of 2017.
  - Describes well completion activities at five well sites in Alaska. Four of these were located within the MPU.
  - At Well Affected Facilities, during flowback activities<sup>5</sup> liquids were routed to a flow line, with zero venting during those events.
- The *2017 Annual Report*, dated 3/26/18, covers the time period 8/3/17 through 12/31/17 (just 5 months, as Hilcorp transitioned to reporting on a calendar year basis).
  - Locations with Collections of Fugitive Emission Components at Well Sites increased to 17 well pads in Alaska. Six of the 17 sites were located within the MPU field: Pads B, C, J, K, L and S.
  - Describes hydraulic fracturing/refracturing at one well located on MPU C-Pad.
  - During flowback, liquids were routed to a flow line, with zero venting during the activity.
  - Inspections of Fugitive Emission Components were reported at all six MPU well pads.
  - Counted 10 leaking components at two MPU pads.
  - Placed none of the leaking components in Alaska on a delay-of-repair schedule.<sup>6</sup>
  - Reports that all repairs were made within 30 days of discovery. When resurveying repaired sites, the facility reports using a FLIR/GF320 camera at some locations and a soap spray in other locations.
  - Reported no deviations from the facility’s monitoring plan at any site in Alaska.
- The *2018 Annual Report*, dated 3/29/19, covers the time period 1/1/18 through 12/31/18. (See also Records Review section of this report, below, for further details.)
  - Locations with Collections of Fugitive Emission Components at Well Sites increased to 20 well pads in Alaska. Seven of the 20 sites were located within the MPU field: Pads B, C, F, J, K, L and S.
  - Describes hydraulic fracturing/refracturing at two wells located on MPU L-Pad.

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<sup>5</sup> Flowback means the process of allowing fluids and entrained solids to flow from a well following a well treatment. §60.5430a.

<sup>6</sup> Leaks must be repaired within 30 days of discovery. However, leaking components can be placed on a delay-of-repair schedule for several reasons, including if the repair is technically infeasible, requires a vent blowdown, a well shutdown or shut-in or would be unsafe to repair during operation of the unit. §60.5397a(h).

- During flowback liquids were routed to a flow line, with venting during two activities at L-Pad. The report states venting was limited to nitrogen gas used for flow assistance. Nitrogen is a non-combustible gas.
- Counted nine leaking components at five MPU pads.
- Placed three of the leaking components at MPU pads on a delay-of-repair schedule, (repairs would require a shutdown).
- Reports that one repair at B-Pad was not made within 30 days of discovery (Discovered on 10/18/18 and Repaired on 11/19/18.) This late repair was not identified as a deviation by Hilcorp.
- Resurveys of repaired sites were performed using a FLIR/GF320 camera at some locations and a soap spray in other locations.

## **II. On Site Inspection**

### **Opening Conference**

I arrived at the Hilcorp MPPF facility with ADEC inspectors Breanna Howard, Dylan Morison and Hunter Mallinger, and EPA inspector Christopher Williams at 9:00 am on July 17, 2019 for an announced inspection. After checking in at the front desk, we met with facility representative Mike Helms, North Slope Environmental Specialist. Mr. Helms said he is a contract employee and would be assisting us with our inspection today. Later in the meeting, we were joined briefly by John Nystrom, Lead Field Operator, who stepped into the conference room to say hello and let us know he'd be available if we had questions.

The other inspectors and I presented our credentials to Mr. Helms. I informed him that this was a joint State/EPA inspection with EPA lead to determine compliance with regulations under the Clean Air Act. I passed around a sign-in sheet which we all signed. (Attachment 4).

I said the scope of the inspection was to check on compliance with New Source Performance Standards (NSPS) Subpart OOOOa. I said even though that was the focus, the inspectors would keep our eyes open and make note of any other potential air compliance issues we might come across as we carried out today's inspection. I said our inspection would involve going to one or more well pads to check for methane and VOC leaks, using an FLIR Optical Gas Imaging (OGI) infrared camera and a photoionization detector (PID).

I said I had reviewed information in their air compliance file in advance of the inspection and had a question. I said the most recent minor source permit for the facility resulted in disaggregating well pads from the Title V permitted facility and asked to confirm if that was right. Mr. Helms said he would check on that and make sure someone got back to me with the information.

Mr. Helms gave us a safety briefing about the MPPF activities overall, including alarms that might go off and the rally point location at the CFP gym. Mr. Helms said he would be our escort to any location we wanted to visit across the facility.

I asked what well sites were active at this time. Mr. Helms said the Innovation Drill Rig was drilling now on E-Pad. He said the Doyon "14" Rig is on M-Pad drilling new wells, both injectors and producers.

Mr. Helms said E-Pad had a "triggering event" becoming subject to Subpart OOOOa on 1/6/19, when Well E-35 was drilled. He said M-Pad had a triggering event on 4/6/19 when Well M-10 was drilled. He said the triggering event was "(i) but not (a)," referring to criteria for becoming subject in the Subpart OOOOa rule. He said both pads will have exclusion zones today because of the drilling activity.

Mr. Helms said M-Pad has a liquids separation vessel built in. He said M-Pad went down last night due to "an emulsion issue" but was currently producing. We asked if there was a flowback of fluids occurring today. Mr. Helms said no. We asked where flowback fluids go. He said the operations staff can explain that.

I said that we would be asking for records from this inspection. I said that if Mr. Helms thought any records or information we gathered today was confidential business information (CBI), to please let us know.

I said that prior to the inspection I checked for online records from the facility, specifically if they had submitted advance notice of well workovers to EPA and had found none. I said we'll want to verify if the notice was given to EPA as required by Subpart OOOOa. (§60.5420a(2))

I said I noticed in Hilcorp's Annual Reports for Subpart OOOOa that some well pads that are part of the MPPF facility are included in the reports, but other pads are not. I asked Mr. Helms if he could explain why some were and some weren't.

He said Pads A, D, E, F, G, H and I were not in the Annual Reports because they have not had drilling activity. However, he said, E-Pad had drilling activity at Well E-35 in 2019 after the last report was submitted to EPA and became regulated under Subpart OOOOa.

He said the following MPU well pads had triggering events and gave us the dates they became subject to Subpart OOOOa:<sup>7</sup>

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<sup>7</sup> My understanding from this conversation is that Mr. Helms said "(a)" he was referring to §60.5365a(a) - each well affected facility, and when he said "(i)" he was referring to §60.5365a(i) - the collection of fugitive emission components at a well site.

**Table 1: MPU Well Pad Triggering Events**

Pad	Well	Well Activity "(a)" date	Collection of Fugitive Emissions "(i)" date
C	15-A	8/25/16	
S	90	11/18/16	
B	30	5/29/17	
C	45	10/30/17	
C	46	7/14/17	
L	41	11/1/18	
L	55	12/11/18	
B			2/17/16
C			6/18/16
E			1/6/19
F			2/16/17
J			4/18/18
K			3/28/16
L			10/10/15
M			4/6/19
S			11/18/16

Mr. Helms added that if they have a triggering event in the winter, they have until June 30 to do their initial survey. If the event is not in the winter, then they have 60 days to do the initial survey.

We asked Mr. Helms if the MPPF facility has any leaks on a delay-of-repair schedule. He said they have three. I said their first two years of Annual Reports did not have any components on delay-of-repair. I asked what changed? Mr. Helms said he'd have to ask the Operations staff about that and get back to me.

I asked when is the next scheduled shutdown when repairs could be made? Mr. Helms said one is scheduled next week, on 7/25/19. I said EPA's expectation is that leaks on a delay-or-repair schedule get repaired during a planned shutdown.

I discussed the facility's Title V air permit. I said the ACC Hilcorp submitted for 2018 said they had intermittent compliance with permit conditions related to a late test notification for heaters, including heaters located on E-Pad, and for submitting an incomplete Facility Operating Report (FOR). I said the ACC says nothing about Subpart OOOOa compliance and asked if the next ACC (covering 2019) will include Subpart OOOOa compliance information. Mr. Helms said it probably does and they were looking at it.

I said the 4<sup>th</sup> Quarter 2018 FOR stated that their Glycol Dehydrator Unit (EU 25) has a closed vent system which operated all year. I said the permit requires that, at a minimum, they use the dehydrator at least 2,400 hours a year. I asked if there are times when they do not use the dehydrator, and why would that be something they chose not to operate? Was there any time the

dehydrator is not in use? Mr. Helms said he would check with Russ, the Lead Operator for the plant to find out.

We talked about which well pads to select for the inspection. We selected C-Pad and M-Pad. C-Pad has three leaking components on a delay-of-repair schedule, and M-Pad has active drilling and a built-in separations tank. Mr. Helms said their first fugitive emissions monitoring for M-Pad was on 5/17/19.

I requested a copy of Hilcorp's Fugitive Monitoring Plan. Mr. Helms said it was prepared by a contractor, HLP Engineering. He said he would ask one of the Hilcorp environmental managers to send that to me.<sup>8</sup> He said the actual leak inspections are done by a different contractor. He was not sure who that was but said he would look it up and get back to me. I said we would request a copy of the contractor's leak inspection records as part of this inspection.

### **III. Process Overview**

**Interview with John Nystrom, Lead Field Operator.** At about 10:50 am., we walked to Mr. Nystrom's office to ask him some questions about the MPPF facility. I said EU 5, a Lakota Heater, is listed in the Title V permit as being located on E-Pad. I asked him what it does. Mr. Nystrom said it provides "heat to the line," meaning heat to the fluids coming from E-Pad to Central Facility Processing (CFP). He said the heat helps them separate oil from water.

Mr. Nyman signed our hot work permit to go out to C-Pad and M-Pad today. EPA Inspector Williams asked what was the API of crude oil in the MPU field? Mr. Nyman said it generally was in the range of 18-24 but can be heavier.

We said C-Pad has three leaking components on a delay-of-repair schedule and asked if he can confirm if they've been repaired. Mr. Nyman said yes, all three had been repaired. He said "Kerri" with Hilcorp came out with an OGI camera to confirm the repairs were done. Mr. Nyman and Mr. Helms said they thought Carrie works out of the Endicott facility, but were not certain. Mr. Nyman said one of the delay-of-repair items was a compressor and required a shut down to make the repair. He said the compressor is used for gas injection. He said gas comes in from the pads at 1,285 psi and they step it up to 4,750 psi for injection. He said only C-Pad injects its gas with this compressor. He said that we would meet with "Charlie" out at C-Pad today.

**Interview with Russ Robbins, Facility Lead Operator.** At about 11:10 am we spoke with Mr. Robbins in the control room. Mr. Robbins explained how they use the glycol dehydrator system. He said it's always used whenever they're processing gas. He said the point is to strip water from the gas. He said gas is consumed locally as fuel or used for injection. The water boils off as steam, he said, while the glycol is captured and reused repeatedly.

We took a lunch break from 11:15 am – 12:15 pm before heading out in the field.

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<sup>8</sup> The monitoring plan was sent to me via email from Hilcorp on 7/23/19 and is attached to this report.

### III. Plant Tour/Walkthrough

The EPA and ADEC inspectors visited two well pads during the inspection, driving from the MPU CFP facility out to C-Pad and M-Pad. See Map of MPU Well Pads, Attachments 5. We were accompanied by facility representative Helms. ADEC Inspector Howard was not with us for this portion of the inspection.

Both sites visited have been identified by Hilcorp as being subject to NSPS Subpart OOOOa. Each site is a Collection of Fugitive Emissions Components at a Well Site. (§60.5365a(i))

At each site visited, the inspectors obtained photographs of the pad and facility equipment (see the photolog, Attachment 6). The inspectors made auditory, visual, and olfactory (AVO) observations, including using the OGI camera (see the video log in Attachment 7), as well as photo-ionization detection (PID) observations to document the conditions of and any emissions originating from the well sites.

During the facility inspection, I wrote down observations in a notebook and took photographs, as other Inspection Team members used instruments to check for leaks. Inspection Team members used the following equipment:

- EPA Inspector Williams operated an optical gas imaging (OGI) infrared (IR) camera manufactured by FLIR, Model GF320, serial number 44401085 (EPA Tag ID: C10103) to record videos of emissions sources using the visible light mode, the high sensitivity IR mode (HSM), and the fully automatic IR mode (Auto).
- ADEC Inspector Mallinger operated a photo ionization detector (PID) to measure volatile organic compound (VOC) concentrations (excluding methane, ethane, and propane) in air. The PID was manufactured by Rae Systems, Model ppbRae3000, serial number 594-901619 (EPA Tag ID: B12349).
- I took digital photos with a Panasonic Lumix, DMC-TS30 camera, serial number WL8GD003184. (EPA Tag ID: SZ0160).

The FLIR OGI camera and PID were calibrated prior to the field inspection and the calibration records are stored at a centralized location in OECA's Office of Civil Enforcement (OCE), Air Enforcement Division (AED) offices located in Washington, D.C.

#### A. C-Pad

We arrived at this site at 13:10. Weather: temperatures in the mid 40's, cloudy. Wind 5 mph.

The PID showed a VOC concentration of 0.00 ppm in the general pad area, away from the wells and the Compressor Building. Facility representative Helms spoke with Field Operator Ryan Christensen and obtained a hot work permit for our on-site observations at the pad. Mr. Christensen said he disabled the fire suppression system and that it was OK for me to use my camera with a flash. Mr. Helms had a list of three components at C-Pad which had been on a delay-of-repair schedule in 2018, then repaired according to facility representatives. Our intent

was to check on those locations and see if they were currently leaking. The three components were described on his list as:

- Threaded Bolt on Plate
- Bolt Flange
- Threaded Connection FT Tube

These three components are more fully described in an email from Hilcorp to EPA Inspector John Pavitt on 7/23/19. (Attachment 8)

**Compressor Building.** Two components from the delay-of-repair schedule were from a compressor unit located in the Compressor Building. Mr. Christensen joined us for our inspection. From outside the building, I noticed a rotten egg smell. Using the OGI camera Inspector Williams observed VOC gas emissions coming from two horizontal pipes located above the front doorway. (See Attachment 7, Video Image Log). Mr. Helms said he thought the pipes were engine crankcase emissions.

<b>VOC Emission Description No. 1</b>	VOC emissions via two exhaust pipes, approx. 20 ft
C-Pad Compressor Bldg., Exterior	above ground.
Video file	MOV_0557
PID reading	0.00 ppm
Tag	None
Photo file	P1000085-0087

We stepped inside the doorway to the Compressor Building, where I also saw a bucket hanging from a pipe. The bucket had an oily coating on the bottom of it. I asked ADEC Inspector Mallinger to use the PID to measure VOC fumes from it. The PID measured a VOC reading of 0.05 ppm.

A few feet further into the building was an operating engine with a nameplate showing it was a Superior compressor engine. I confirmed the two horizontal exhaust pipes we observed from outside were connected to the compressor engine. This engine is listed as Emission Unit CP-6 on the Title V permit, is rated at 1,600 HP, runs on fuel gas and was built in 1995.<sup>9</sup> (Attachment 2, EU Inventory) The engine control panel showed the following information:

- Engine Speed 657 PRM
- Crank Dis 275
- Suction Pressure 1,289
- Suction Set Point 1,290

Mr. Christensen said the compressor steps up the gas pressure to 4,750 psi for field injection.

Using the OGI camera, EPA Inspector Williams found a VOC leak from a threaded valve on the engine. This part of the engine was labeled as "Cylinder #2" and "Suction Bottle 2<sup>nd</sup> Stage." The

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<sup>9</sup> The Superior Engine and all other equipment at C-Pad was disaggregated from the Title V permit. The engine last appeared on the EU Inventory in AQ0200TVP02, Revision 4, effective 9/9/15. It was dropped with the issuance of Minor Permit AQ0200MSS08, effective 3/12/19. See Attachments x and x.

PID measured 5.6 ppm at this location. Mr. Christensen said this was not one of the delay-of-repair components we were looking for. It was a new leak. I asked Mr. Christensen if he would tag this location as a leaking component for repair. He said he didn't have a tag with him but would "tag" it by tying an orange ribbon on the location. I watched Mr. Christensen pull an orange ribbon off of a pipe in the building, and then tie it onto the leaking threaded valve we had just found.

<b>Leak Description No. 1</b> C-Pad Compressor Bldg., Interior	New VOC leak on compressor engine threaded valve.
Video file	MOV_0558.
PID reading	5.6 ppm
Tag	Orange ribbon "tag" applied by operator.
Photo file	P1000091

We asked Mr. Christensen to show us the delay-of-repair components on the list (above). He showed us a "Threaded Bolt on Plate" component, which was located on "Cylinder 3" of the engine. We checked the plate bolts, and they were not leaking at the time of the inspection. We did not find any other leaks in this building.

**Mod 26 Building.** At about 14:25 we walked next to the Mod 26 Building, where the third of three delay-of-repair leaking components had been identified in 2018. We started at the top floor to observe for leaks with the PID and OGI camera. We did not find leaks with either instrument. Mr. Christensen pointed out the location that he said he believed matches the description of a delay-of-repair component from the list (above), but could not be sure. The component was described as "Threaded Connection FT Tube" on his list. There was no tag on the component he showed us. However, I saw orange ribbon tape hanging from two items in the area, similar to the orange ribbon Mr. Christensen had tied onto the leaking component we observed in the Compressor Building earlier today. The ribbon was not written on or otherwise marked to signify what it represented. After some discussion with the facility representatives, and further efforts to find a leak with our instruments, I said because the location was not tagged, we could not confirm this was the same location. I took a photo of the equipment (P1000092). Mr. Christensen said the equipment in this area is not in service, but it was pressurized. He said it's the C21 Gas Lift Line, and measures flow to Well 21.<sup>10</sup> I noted that equipment in this area was labeled "FE 2601J."

We walked downstairs to the second floor at about 15:00 to continue observing for leaks with the PID and OGI camera. We did not find leaks with either instrument. We proceeded downstairs to the first floor and again did not find leaks with either instrument.

At 15:09 we stepped outside. EPA Inspector Williams scanned front exterior the Mod 26 Building and saw no leaks with the OGI camera.

**Wellhouse MPC 7.** We looked next at Wellhouse MPC 7, checking the exterior and interior for leaks. The well was off line temporarily, according to the facility representatives. We found no

<sup>10</sup> Well 21 is one of 28 wells shown on the Map of C Pad in the facility's Fugitive Emissions Monitoring Plan, Attachment 9.

leaks. The PID reading in and out of the wellhouse was 0.00 ppm. I saw orange ribbon hanging from a valve inside the wellhouse. Mr. Christensen said the orange tag represented something else – not a leak. We left Wellhouse 7 at about 15:25.

**Wellhouse MPC 4.** We went next to Wellhouse MPC 4, checking the exterior and interior for leaks. Well MCP 4 is located at the northwest edge of C-Pad. The well was online and producing about 60 bbl of oil a day, according to the facility representatives. The PID reading at the exterior of the wellhouse was 0.00 ppm. Using the OGI camera, EPA Inspector Williams found two leaks, each one from different valve stem packing on the oil well. The stems were red in color. One leaking valve stem already had red ribbon tied to it when we first arrived. The PID measured 21.85 ppm at one leak location, and 91.45 ppm at the other leak location. At about 15:47 Mr. Christensen tied an orange ribbon to both of the leaking valve stems, and we left the pad.

<b>Leak Description No. 2</b> Wellhouse MPC 4	New VOC Leak on well valve stem packing.
Video file	MOV_0559
PID reading	91.45 ppm
Tag	Orange ribbon "tag" applied by operator.
Photo file	P1000098

<b>Leak Description No. 3</b> Wellhouse MPC 4	New VOC Leak on well valve stem packing.
Video file	MOV_0560
PID reading	21.85 ppm
Tag	Orange ribbon "tag" applied by operator.
Photo file	P1000099-0100

We then drove to M-Pad to continue our inspection, stopping first at the MPU CPF for a restroom break.

#### B. M-Pad

We arrived at M-Pad at 17:00, escorted by facility representative Helms. The sky was completely overcast, the temperature was 40 °F and winds were 10 mph.

We stopped in the M-Pad office and checked in with the Operator to get a hot work permit. We were met by M-Pad Lead Operator Brook Locke who granted us access. Ms. Locke said drilling at M-Pad started in November 2018, and the initial survey for VOC and methane leaks was on May 17, 2019. She said it's the newest pad in the MPU.

Mr. Helms said M-Pad is producing about 7,000 bbl/day of oil. He said they're not producing today because they're shut down. He said M-Pad does a "first cut" at separating oil/water before sending fluids to the MPU CPF for processing.

Ms. Locke gave us a tour of the facility, walking us through their process flow. Stepping outside of the M-Pad trailer office, the PID showed a VOC concentration of 0.00 ppm.

**Well Headers.** We started our tour looking at the well headers and the Doyon Drill Rig on M-Pad. (Photo P1000103).

**Pigging and Degassing Module.** We went next to a module which Ms. Locke said is used for pigging and degassing operations. She said the module has two "trains" bringing in fluids from the L- and F-Pads. Together with M-Pad fluids, the combined fluids flow first to two de-gasser units, then to gas-fired heaters, then to two oil/water separator tanks, and then to two test separators. This process cuts 70-80% of the water in the well fluids, she said.

We checked for leaks in the Pigging and Degassing Module. In the separator area, PID readings were 0.00 ppm. Our observations included looking at pneumatic pump controllers. Mr. Helms said the pneumatic controllers were not a wet seal design. I did not see tags on the pneumatic controller in this area.<sup>11</sup>

While in the separator area, ADEC Inspector Morison said he noticed an odor. ADEC Inspector Mallinger, using the PID, got a reading of 280 ppm. Ms. Locke said the equipment in this spot was part of the Emulsion Breaker Pump System. I saw a wet spot on the floor. I estimated it was approximately ¼ cup of liquid and 10 inches in diameter on the floor beneath the pump system. (Photos P1000105-0106.) The OGI camera did not observe a leak in this area.

We stepped outside the module just after 18:00. I saw two storage tanks which the facility representatives said were for Jet Wash. One was silver, which they said was not yet in service. The second was green and portable.

**Process Heaters.** Our tour continued. Ms. Locke walked us past two process heaters located outside of the Pigging and Degassing Module. She estimated they were rated at 15 MM Btu/hr. Heating is used to make the oil/water separation process more effective, she said. Adjacent to the heaters were two black, insulated towers which were slightly shorter than the heaters. Ms. Locke said they were de-gassers, which allow gas to pull out of incoming fluids. (P100107)

**Pump Module.** The Pump Module is used to handle water from vessels on the M-Pad, according to the facility representatives. Our PID instrument measured 0.40 ppm in this area, outdoors. The OGI camera saw no leaks in this area.

We discussed the wells on M-Pad. Ms. Locke said there are six producers on line, one disposal well, one injection well and one source water well. She said the injection and source water wells are not online.

**Well House M-18.** At Well House M-18 we checked for leaks. The PID was showing a VOC concentration of 0.00 ppm from the exterior and interior of the well house. The OGI camera did not show a leak at this location. The facility representatives said this well was running. I saw a

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<sup>11</sup> Tags are required on pneumatic controllers subject to Subpart 0000a. See §60.5390a(c)(2) for specific, required information to be included on tags.

temperature gauge inside the well house, showing 117 °F, which Ms. Locke said was for water coming in from the Pump Module for injection. Another temperature gauge showed 105 °F, which she said was the crude oil.

**Well House M-16.** We arrived at Well House M-16 at 18:45, where we again checked for leaks. The PID was showing a VOC concentration of 0.00 ppm from the exterior and interior of the well house. The OGI camera did not show a leak at this location. The well was operating. The water pipe temperature gauge inside the well house showed 120 °F. The crude oil pipe showed 100 °F. (P100108-0109)

**Methanol Storage Tanks.** I observed two horizontal storage tanks and asked what was in them. Ms. Locke said they store methanol and estimated the volume of each tank was 42,000 gallons. I said methanol storage tanks might be subject to EPA's New Source Performance Standards, Subpart Kb, and that I would follow up with Hilcorp's environmental manager to check on that.

We departed M-Pad at 19:00 and drove directly to the MPU CPF, arriving about 20 minutes later. We took a dinner break at the CPF and used the time to have an exit meeting with Mr. Helms. (See below.)

## V. Records Review

Prior to the inspection, I requested maps of the Milne Point Unit (MPU). Hilcorp Environmental Engineer Drew Anderson emailed me two maps on July 8, 2019. (Attachment 5) The maps show Hilcorp operates four oil and gas fields/units on the AK North Slope, and MPU is the only one which is located on-shore. The other fields are off-shore.

During the on-site inspection I requested records from our facility escort, Mike Helms. Mr. Helms said he was a support contractor and asked that I contact Hilcorp's environmental manager, Julieanna Potter for any records. One record he did give me while I was on site was a printed copy of the facility's 2018 Annual Compliance Report. However, the margins ran off the page making it hard to read.

The day after the on-site portion of the inspection, I exchanged email with Hilcorp Environmental Specialist Julieanna Potter, letting her know I would be calling her to discuss questions that came up during the inspection and my records request. We connected by phone on 7/22/19. I asked for a copy of the company's Subpart OOOOa Fugitive Monitoring Plan. Ms. Potter emailed it to me on 7/23/19. (Attachment 9) I said I was currently traveling out of state for work and would request additional records when I was back at my desk and could review my notes.

On 8/2/10 I emailed Ms. Potter and requested additional records as part of the inspection. (Attachment 10) These records were:

- the facility's Subpart OOOOa 2018 Annual Compliance Report,
- records for the three new leaks identified during the on-site inspection,
- records for leaking components the company put on a delay-of-repair schedule in 2018,

- clarification about leak repairs at the MPU B-Pad, from the company's 2018 Annual Report,
- information on storage tanks and heaters we observed at M-Pad.

Ms. Potter replied to my request on 8/16/19. (Attachment 11)

**2018 Annual Report.** The report is for calendar year 2018 and covers Hilcorp facilities located on the Alaska North Slope and in the Kenai Peninsula (approximately 1,000 miles apart from each other). The report is required by Subpart OOOOa (§60.5420a(b)(1)) After reviewing the report, I noted the following potential compliance concerns.

**Affected Facility not Inspected:**

The 2018 Annual Report does not identify fugitive leak inspections at the Beaver Creek Unit Pad 4, but the site is listed as an affected facility in Hilcorp's Fugitive Emissions Monitoring Plan (Attachment 9).

**Missed Inspections:**

Two Kenai Peninsula facilities were reported as only being inspected once in calendar year 2018. Affected facilities (other than those on the Alaska North Slope) are required to have an initial inspection within 60 days of startup of production (§60.5397a(f)(1)), followed by semiannual inspections thereafter (§60.5397a(g)(1)).

- Beaver Creek Unit Pad 3, inspected 11/27/18.
- Swanson River SCU 33-33 Pad, inspected 11/29/18.

**Inspection Start and End Times Overlapping at Different Sites:**

The 2018 report shows that in two instances, Hilcorp's inspector was at two sites at the same time.

**Table 2: Overlapping Inspection Dates & Times**

Site	Date	Arrival	Departure	Hilcorp Inspector
Kenai Gas Field 14-06	11/27/18	11:29 am	3:03 pm	S.H.
Kenai Gas Field 14-07	11/27/18	1:10 pm	3:34 pm	S.H.
MPU C-Pad	10/21/18	3:05 pm	4:33 pm	K.E.
MPU L-Pad	10/21/18	4:33 pm	4:50 pm	K.E.

According to the facility's Monitoring Plan, Kenai Gas Fields 14-06 and 14-07 pads are a little more than 0.5 miles apart. MPU C-Pad and L-Pad are about 3 miles apart. It's not possible for the inspector to be at two locations at the same time.

**Rapid Pace of LDAR Inspections:**

The 2018 Annual Report provides the LDAR inspection arrival time, departure time, and the number and types of leaks found, if any, at each affected Hilcorp facility in Alaska.

The report states that at multiple sites, Hilcorp's inspector was on site for such a brief time it does not seem plausible they could complete a LDAR inspection, based on my experience observing for leaks at oil and gas facilities in Alaska using an OGI camera. As shown in the table below, the shortest duration Hilcorp inspections are reported as lasting just 2 *minutes*. At the quickest inspection sites, no leaks were reported to be found by the company's inspectors. When inspection time increased to five or more minutes, some leaks were found.

**Table 3: Brief LDAR Inspections at Hilcorp Alaska Facilities**

Site	Date	Arrival	Departure	Duration	Leaks Found
MPU L-Pad	10/21/18	4:33 pm	4:50 pm	17 min	1
Swanson River Unit SCU 14-04 Pad	6/3/18	7:46 am	7:53 am	7 min	1
Swanson River Unit SCU 12-03 Pad	6/3/18	8:05 am	8:08 am	3 min	0
Swanson River Unit SCU 21-33 Pad	6/3/18	8:16 am	8:18 am	2 min	0
Swanson River Unit SCU 32-15 Pad	6/3/18	8:32 am	8:37	5 min	0
Swanson River Unit SCU 14-04 Pad	11/29/18	10:02 am	10:04 am	2 min	0
Swanson River Unit SCU 12-03 Pad	11/29/18	10:10 am	10:15 am	5 min	2
Swanson River Unit SCU 33-33 Pad	11/29/18	10:23 am	10:25 am	2 min	0
Swanson River Unit SCU 21-33 Pad	11/29/18	10:30 am	10:33 am	2 min	0
Swanson River Unit SCU 32-15 Pad	11/29/18	10:45 am	10:48 am	3 min	0

How do these brief inspection sites compare to the overall LDAR inspection effort reported by Hilcorp in Alaska? According to the *2018 Annual Report*:

Number of Hilcorp Subpart OOOOa Fugitive Emission Inspection Sites: 20

Total Number of Inspections in 2018 34  
(Some sites are on a semiannual schedule, some are annual)

Total Number of Leaks Found: 26

AFS-AK00000000218500050

Number of Inspection Sites w/ Leaks Found:	14
Average Time on Site (All Sites):	74 min
Longest Inspection:	368 min
Shortest Inspection:	2 min
Time Spent at C-Pad:	88 min
Leaks Found at C-Pad:	4
Average Time on Site when a Leak was Found:	94 min
Average Time on Site when No Leaks were Found:	59 min
Average Number of Leaks Found Per Site Inspection: (34/26)	0.76

Hilcorp Inspectors spent an average of 74 minutes per inspection site overall, and 94 minutes when they found leaks. Compared to that average, it's not surprising that inspections lasting just two or three minutes did not discover leaks.

The inspection at MPU L-Pad from the table above shows a different compliance concern. On 10/21/18, the report states that Hilcorp's inspector conducted a LDAR inspection at L-Pad, a large site with 46 well houses to monitor, and the inspector spent just 17 minutes there. That's 22 seconds per well house, inside and out. I looked at the company's Fugitive Emissions Monitoring Plan (Attachment 9) to see what it says about their procedures for inspecting this site. The Plan has maps of each well pad location in Alaska and "the observation path to be used by the OGI surveyor" in making their observations. If an inspector stuck to the designated observation path at L-Pad they would walk about a half mile. At an average walking speed of 3 mph<sup>12</sup> it would take about 8 minutes to walk the designated observation path, leaving just 9 minutes for observation time, or 12 seconds per well house. Based on my experience doing leak checks using a FLIR camera, 12 seconds is not enough time to make observations of all subject components at a well house, inside and out, as required by Subpart OOOOa.

#### Same Start and End Times Unchanging for Recurring Visits:

Two inspection sites are reported as starting at the exact same time and ending at the exact same time on subsequent visits, six months apart. The coincidence of the exact timing of the visits seems improbable.

<sup>12</sup> See <https://www.healthline.com/health/exercise-fitness/average-walking-speed>

**Table 4: Unchanging Inspection Start and End Times**

Site	Date	Arrival	Departure	Duration
Kenai Gas Field 41-18 Pad	6/1/18	9:32 am	9:45 am	13 min
Kenai Gas Field 41-18 Pad	11/27/18	9:32 am	9:45 am	13 min
Nikolaevsk Unit Red Pad	5/2/18	1:59 pm	2:12 pm	13 min
Nikolaevsk Unit Red Pad	11/28/18	1:59 pm	2:12 pm	13 min

## VI. Closing Conference

Our closing conference to review the inspection with the facility started at about 20:00. The EPA and State Inspectors met with facility representative Helms at the cafeteria of the MPU CFP facility.

I described our observations at C-Pad and M-Pad today. We found three fugitive emission leaks at C-Pad: one from a compressor which in 2018 also had two leaks which were put on a delay-of-repair schedule, plus two at Wellhouse MPC 4. After we found the leaks, the C-Pad operator put temporary, orange ribbon "tags" onto the leaking components. I asked that Mr. Helms please confirm for me when the operator has gone back and tagged them with something more permanent that clearly identifies the leaks.

I said I would send a request for records to Julieanna Potter, Hilcorp's Air Quality Environmental Specialist, following Mr. Helm's recommendation. I said I would need the records to complete my report, and my inspection would not be over until then.

I asked Mr. Holmes if any of the photos we took today, or anything else today raised CBI concerns. He said not that he knew of. I said if it did, to please let me know.

I asked if Mr. Helms had any questions for us. He did not. We left the facility at 20:15.

## VII. Areas of Concern

Based on my on-site inspection and review of records provided by Hilcorp, I have identified compliance concerns at multiple facilities, including the MPU well pads visited for this inspection.

The State of Alaska Issued a Warning Letter to the MPU facility on 9/28/17 for violation of the RICE NESHAP Subpart ZZZZ requirement for preventative maintenance, for two engines located on C-Pad. C-Pad has since been disaggregated from the MPU Title V permit. I was unable to verify during this inspection that the facility has returned to compliance by performing the deferred maintenance or if additional issues remain to demonstrate compliance with Subpart ZZZZ. During the inspection we observed a significant plume of unburned hydrocarbons being emitted from crankcase ventilation exhaust from a Superior Engine, listed as Emission Unit CP-6

on the Title V permit. The engine is rated at 1,600 HP and should be checked to confirm it has been getting the preventative maintenance required by Subpart ZZZZ.

Hilcorp reported no deviations from its Fugitive Emissions Monitoring Plan in 2018. However, the company's *2018 Annual Report* shows one occasion in which a leak at MPU B-Pad was not repaired within 30 days. Failing to make a repair within 30 days is a deviation from the company's Fugitive Emissions Monitoring Plan (and a violation of OOOOa) and should have been reported as such. Failure to report a deviation is a violation of Subpart OOOOa. (§60.5420a(b)(7))

In addition, the *2018 Annual Report* shows that on a number of occasions, below, the company may have skipped required inspections and/or conducted such brief inspections that the level of effort does not constitute a fugitive emissions inspection as described in the Plan (and as required by Subpart OOOOa). If true, then these other incidents also should have been reported as deviations. Failure to report a deviation is a violation of Subpart OOOOa. (§60.5420a(b)(7))

A review of EPA records shows that Hilcorp has submitted no notices to EPA (required two days in advance) for well completion operations in Alaska. Advance notification is required. (§60.5420a(2))

At M-Pad, we did not see tags on the pneumatic controller in the Pigging and Degassing Module. As required by §60.5390a(c)(2). Each pneumatic controller affected facility at a location other than at a natural gas processing plant must be tagged with the month and year of installation, reconstruction or modification, and identification information that allows traceability to the records for that controller as required in §60.5420a(c)(4)(iii).

The Beaver Creek Unit Pad 4 facility was not inspected for fugitive leaks in 2018, but the site is listed as a subject to Subpart OOOOa in Hilcorp's Fugitive Emissions Monitoring Plan. Depending on when the site became an affected facility, one and possibly two inspections were required in 2018. Failure to conduct inspections is a violation of Subpart OOOOa. (§§60.5397a(f) and (g))

The Beaver Creek Unit Pad 3 and Swanson River SCU 33-33 Pad were each inspected just once in 2018. Depending on when the sites became subject to the rule, a second inspection may have been required in 2018. Failure to conduct inspections is a violation of Subpart OOOOa. (§§60.5397a(f) and (g))

The *2018 Annual Report* states that inspections were taking place at multiple sites with overlapping times by the same inspector, which is not physically possible. The sites are Kenai Gas Field 14-06 overlapping with Kenai Gas Field 14-07, and MPU C-Pad overlapping with MPU L-Pad. It raises the question as to whether the inspections were actually performed. Failure to conduct inspections is a violation of Subpart OOOOa. (§§60.5397a(f) and (g))

On 10 occasions in 2018, Hilcorp's fugitive leak inspectors carried out inspections which were so brief as to not be credible. The inspectors were on site for just a few minutes, or in one case at a larger pad, could not have spent more than about 9 seconds at each well house on the pad. Failure to conduct inspections is a violation of Subpart OOOOa. (§§60.5397a(f) and (g))

At two locations in the Kenai Peninsula, Hilcorp's inspector was reported to arrive and depart at the exact same time on subsequent visits six months apart, which does not seem plausible. It raises the question as to whether the inspections were actually performed. Failure to conduct inspections is a violation of Subpart OOOOa. (§§60.5397a(f) and (g))

### **VIII. List of Attachments**

1. Email correspondence from John Pavitt, EPA to Drew Anderson, Hilcorp Alaska Inc., Re: EPA/ADEC Air Compliance Inspection, Hilcorp AK Milne Point.
2. Permit AQ0200TVP02 Emission Unit Inventory (before disaggregation).
3. Permit AQ0200MSS08 Emission Unit Inventory (after disaggregation).
4. Inspection Entry Meeting sign-in sheet.
5. Maps, Milne Point Unit and "Overview of Northslope, Alaska."
6. Digital Photo Log and Photos
7. OGI Video Image Log and Videos
8. Email, Julieanna Potter, Hilcorp to John Pavitt, EPA, Re: Fugitive Monitoring Plan and Leaks on Delay-of-Repair Schedule.
9. Fugitive Emissions Monitoring Plan.
10. Records Request, submitted by John Pavitt, EPA to Julieanna Potter, Hilcorp via email, 8/2/19.
11. Records Response, Hilcorp to John Pavitt, EPA, 8/16/19. Includes 2018 Annual Report.